

Application No.: 10/667,605Docket No.: 4459-130**REMARKS**

Reconsideration and allowance of the subject application in view of the foregoing amendments and the following remarks is respectfully requested. Entry of this Amendment under Rule 116 is merited as it raises no new issues and requires no further search.

Claims 10-16, 20-24 and 26-31 are pending in the application. Claims 1-5 and 25 have been cancelled without prejudice or disclaimer. Claims 10 and 20 have been amended to improve claim language and to avoid indefiniteness issues of claims 13 and 23. The amended claims find solid support in the specification, i.e. the disclosure on page 4, lines 28-29; page 3, lines 8-12; and page 3, lines 15-19, as well as in the original drawing, i.e., FIG 5.

No new matter has been introduced through the foregoing amendments.

The 35 U.S.C. 103(a) rejection of claims 1-5, 10-12, 14, 20-22, 24-26 and 28 as being unpatentable over US Patent No. 6,266,197 to *Glenn et al.* in view of US Patent Application Publication No. 2004/0041221 to *Boon et al.* is either moot or traversed for the reasons advanced below.

**As to claims 1-5 and 25**

Claims 1-5 and 25 have been cancelled. The rejection of claims 1-5 and 25 is therefore moot.

**As to independent claim 10**

The applicants respectfully traverse this rejection because a prima facie case of obviousness has not been properly established.

To establish a prima facie case of obviousness, three basic criteria must be met. First,

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there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). M.P.E.P. § 2142, 8th Ed., Rev. 2 (May 2004), p. 2100-128. All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

The Examiner's obviousness rejection has failed to meet, at least, the first and third criteria.

With respect to the first criterion, the Examiner argues in the Final Office Action, page 5, the second paragraph, that it would have been obvious to combine *Boon et al.* with *Glenn et al.* "in order to reduce the internal reflection losses of the light." The Examiner is kindly asked to specify how (i.e., with particular citation of column and line numbers) the applied references supply such a "suggestion or motivation".

Applicants have carefully reviewed the applied references, especially *Boon et al.*, and failed to locate any teaching of the Examiner's "suggestion or motivation" to combine *Glenn et al.* and *Boon et al.* Accordingly, Applicants respectfully submit that the Examiner's "suggestion or motivation" to combine the references is not found in the art, and is, therefore, inadequate. The 35 U.S.C. 103(a) rejection as formulated by the Examiner is inappropriate and should be withdrawn.

With respect to the third criterion, the applied references clearly fail to teach or suggest the

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limitation of claim 10 that the window is mounted on the optical element of the chip. This limitation is supported by FIG. 5 of the application as filed. An advantage of the claimed structure is that the light transmitting through the window of claim 10 will pass through no other element before interacting with the chip. Therefore, the encapsulant of the device of claim 10 can be made of an opaque material because it does not obstruct the light passing through the window to the optical element of the chip. The applied references do not fairly teach or suggest the above claimed limitation and disclosed advantage.

In particular, the window 122 of *Glenn et al.* is not mounted on the sensor chip 106 as presently claimed. Instead, the window 122 of *Glenn et al.* is mounted over chip 106. Since the structure of *Glenn et al.* is distinguishable from the claimed structure of claim 10, the reference cannot achieve the advantage disclosed in the application. In particular, assuming *arguendo* that *Glenn et al.* is modifiable to include the *Boon et al.* encapsulant 32, the *Boon et al.* encapsulant in the combined device would be disposed between the *Glenn et al.* chip 106 and the *Glenn et al.* window 122. As a result, light transmitting through the window 122 of *Glenn et al.* will have to further pass through the *Boon et al.* encapsulant before interacting with the *Glenn et al.* chip 106. This structure will result in higher optical loss (rather than reduce internal loss as the Examiner alleged) due to the presence of the encapsulant between the window and the chip. This is another reason why a person of ordinary skill in the art would not have been combine *Boon et al.* with *Glenn et al.* as the Examiner proposes.

Finally, since the *Boon et al.* encapsulant would be placed between the *Glenn et al.* window and chip in the Examiner's combined device, the encapsulant must be made of transparent material, whereas the encapsulant in the device of claim 10 can be made of an opaque material as discussed above.

For the overwhelming reasons advanced above, the Applicants submit that claim 10 is patentable over *Glenn et al.* in view of *Boon et al.*

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Claims 11-15 and 26-27 depend from claim 10 and are considered patentable at least for the reasons advanced with respect to claim 10. These claims are also patentable on their own merits since these claims recite other features of the invention neither disclosed, taught nor suggested by the applied art.

**As to claim 12**

Applicants respectfully disagree with the Examiner that the applied references teach or suggest the claimed limitation that the window further comprises a ledge for securing the window in the encapsulant. As discussed above, in the Examiner's combined device, the *Boon et al.* encapsulant would be disposed between the chip 106 and the window 122. In other words, the Examiner's combined device would include window 122 completely disposed above encapsulant 32 imported from *Boon et al.* Thus, the ledge of window 122 could not be secured in the encapsulant as presently claimed.

**As to claim 14**

Applicants respectfully disagree with the Examiner's evidentially unsupported allegation that element 122 of *Glenn et al.* is a lens. Then Examiner is kindly asked to cite column and line numbers of *Glenn et al.* where it is disclosed that element 122 is a lens, or to withdraw his allegation and the erroneous rejection of claim 14. It should be noted that a lens, according to *Glenn et al.*, is disposed well above element 122, as shown in FIG. 12 at 1210.

**As to independent claim 20**

The rejection of claim 20 is traversed because the applied references are not combinable, lacking an adequate suggestion or motivation to combine. As discussed above with respect to claim 10, the Examiner's "suggestion or motivation" for combining *Boon et al.* with *Glenn et al.*, i.e., in order to reduce the internal reflection losses of the light, is evidentially unsupported and

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therefore inadequate.

The rejection of claim 20 is further traversed because the applied references clearly fail to teach or suggest the claimed encapsulant hermetically fixing the support on the substrate. The teaching reference of *Boon et al.* being relied upon by the Examiner for an encapsulant, does not teach or suggest an encapsulant that hermetically fixes a support on a substrate, in the presently claimed manner.

The Examiner's mere allegation in page 7, line 7 of the Final Office Action that the combined device shows an encapsulant formed on the substrate for hermetically fixing the support on the substrate is not understood. The Examiner is kindly asked to explain with reasonable clarity how the *Boon et al.* encapsulant 32 would hermetically fix the *Glenn et al.* support 226 on the substrate 102 ?

For the reasons advanced above, the Applicants submit that claim 2 is patentable over *Glenn et al.* in view of *Boon et al.*

Claims 21-24 and 28 depend from claim 20 and are considered patentable at least for the reasons advanced with respect to claim 20. These claims are also patentable on their own merits since these claims recite other features of the invention neither disclosed, taught nor suggested by the applied art.

**As to claim 24**

Applicants respectfully disagree with the Examiner's evidentially unsupported allegation that element 122 of *Glenn et al.* is a lens as discussed above with respect to claim 14.

**As to claims 13 and 23**

The 35 U.S.C. 103(a) rejection of claims 13 and 23 as being unpatentable over *Glenn et*

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*al.* in view of *Boon et al.*, and further in view of US Patent No. 4,732,042 to *Adams* is traversed for at least the reasons advanced with respect to independent claims 10 and 20.

The rejection is further traversed because a person of ordinary skill in the art would not have been motivated to combine the references in the manner proposed by the Examiner. In particular, optical loss would be increased in the Examiner's combine device if the *Boon et al.* encapsulant was made opaque as taught by *Adams*.

The 35 U.S.C. 103(a) rejection of claims 15 and 27 as being unpatentable over *Glenn et al.* in view of *Boon et al.*, and further in view of US Patent No. 5,897,338 to *Kaldenberg* is traversed for at least the reasons advanced with respect to independent claims 10 and 20.

**As to claim 15**

Claim 15 depends from claim 10 and is considered patentable at least for the reasons advanced with respect to claim 10.

**As to claim 27**

First, *Glenn et al.* fail to disclose, teach or suggest that window 122 is mounted directly on chip 106 in the package 100.

Second, the flat window 122 in *Glenn et al.* will touch the bond wires 114 and bond pads 112 and destroy them if the window 122 is mounted directly on the chip 106 as alleged by the Examiner.

Third, *Kaldenberg* fails to teach or suggest a transparent adhesive layer attaching the lower surface of said window to an upper surface of said optical element of said chip. In the reference, adhesive 28 attaches the lower surface of window 26 to encapsulant 24, rather than to an upper surface of element 12.

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The rejection of claim 27 is therefore erroneous and should be withdrawn.

The 35 U.S.C. 103(a) rejection of claims 29 and 31 as being unpatentable over US Patent No. 4,838,089 to *Okada et al.* in view of US Patent No. 6,266,197 to *Glenn et al.* is traversed from the following reason.

**As to independent claim 29**

The Examiner's attempt to read element 18 of *Okada et al.* on the claimed optical sensor is inappropriate because the element 18 in *Okada et al.* is a pressure sensor, rather than an optical sensor as presently claimed. The art rejection relying on *Okada et al.* is therefore inappropriate and should be withdrawn.

In addition, the element 28 in *Okada et al.* is a shielding member that is airtightly attached to sensor board 12. Shielding member 28 is formed of elastic sealant, e.g., nitrile rubber (*see column 3, lines 51-53 of Okada et al.*). In other words, shielding member 28 in *Okada et al.* is not capable of functioning as a supporting wall and cannot be readable on the claimed supporting wall.

Furthermore, the element 32 in *Okada et al.* is a through-hole formed in the housing 10. The hole 32 must keep open so as to sense pressure and should not be closed by a window. Accordingly, it would not have been obvious to incorporate the window of *Glenn et al.* into the device taught by *Okada et al.* as the Examiner alleges.

For any of the reasons advanced above, independent claim 29 is patentable over the applied references.

Claims 30-31 depend from claim 29 and are considered patentable at least for the reasons advanced with respect to claim 29. These claims are also patentable on their own merits since these claims recite other features of the invention neither disclosed, taught nor

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suggested by the applied art.

**As to claim 31**

The Examiner argument found in page 11 of the Final Office Action is erroneous, because if the pressure sensor of *Okada et al.* is placed in a hermetically sealed cavity, it would cease to at all function. The correct reading of *Okada et al.* is that the pressure sensor of the reference must not be placed in a hermetically sealed cavity in the presently claimed manner.

**As to claim 30**

The 35 U.S.C. 103(a) rejection of claim 30 as being unpatentable over *Okada et al.* in view of *Glenn et al.*, and further in view of US Patent Application Publication No. 2004/0041221 to *Boon et al.* is traversed for at least the reasons advanced with respect to claims 10 and 29.

Accordingly, all claims in the present application are believed in condition for allowance. Early and favorable indication of allowance is courteously solicited.

The Examiner is invited to telephone the undersigned, Applicant's attorney of record, to facilitate advancement of the present application.

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To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,  
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